

IN THE SPECIFICATION

Please amend the title to read: ~~ELECTRON BEAM APPARATUS AND SPACER~~ A SPACER STRUCTURE HAVING A SURFACE WHICH CAN REDUCE SECONDARIES.

At page 1, on a separate line appearing immediately after the title, insert:

--This application is a division of Application No. 09/413,774, filed October 7, 1999.--.

Please amend the paragraph at page 29, lines 10-19 as follows:

What should be done to reduce incident angle multiplication coefficient of secondary electron emission coefficient m_0 as well as to reduce secondary electron emission coefficient $[\delta_0]$ δ_0 for the vertical impedance? After the present inventors' detailed examination, it was found that the above subject can be accomplished by satisfying the following requirements. Specifically, it is considered that the methods grouped into two major categories can be used in order to relax incident angle dependency.

Please amend the paragraph appearing from page 37, line 19 to page 38, line 25 as follows:

The measurement of the second electron emission coefficient and the determination of the incident angle multiplication coefficient of secondary electron emission coefficient m_0 are carried out as described below. First, for the measurement of

~~second~~ secondary electron emission coefficient, a general-purpose scanning electron microscope (SEM) equipped with an electronic ammeter is used. For the measurement of primary electron current, Faraday cup is used. The amount of the ~~second~~ secondary electron current is defined using a detector with collectors (for example, MCP or the like is available). Alternatively, it may be obtained from the ~~data~~ specimen current and the primary electron current using the relationships of continuous law of the ~~data~~ specimen current passing through the ~~data~~ specimen portion, the primary current and the secondary current. Incident angle multiplication coefficient of secondary electron emission coefficient m_0 can be obtained by conducting the measurement at an incident angle of 0 and at an incident angle of other than 0 under the same incident energy conditions. It is a particularly good way to define different incident angles as a θ - δ property and perform regression analysis (fitting) in general formula (1) by the least square method. In this patent application, the above fitting was performed using the secondary device emission coefficients measured at an incident angle of 0, 20, 40, 60 and 80 degrees. As a spot diameter, when the first member has an uneven structure, the size is employed which is larger than the pitch of the unevenness, in particular, which makes it possible to simultaneously expose two cycles or more of unevenness to electrons. The measurement was conducted at a vacuum of 10^{-7} Torr (1.3×10^{-5} Pa) or lower at room temperature (20°C).

Please amend the paragraph appearing from page 39, line 21 to page 40, line 5 as follows:

Here, the thickness of the film on the uneven part of the substrate is measured in the following manner. That is to say, a section is made by cutting off the film perpendicular to the surface of the spacer and exposed. The thickness can be measured at the above section by the section SEM. The film thickness to be measured shall be that of the lowest portion of the concavity on the substrate. When evaluating the thickness by the section SEM, a metal film deposited by sputtering may be provided as a pretreatment. This allows the local charge-up due to the insulating property of the ~~data~~ specimen to be restricted.

Please amend the paragraph appearing from page 65, line 19 to page 66, line 2 as follows:

Thus, the resistance value R_s of the spacer is set for a value within the range desirable in terms of its ~~antistatic~~ antistatic effect and power consumption. In terms of the antistatic effect, preferably the sheet resistivity R/\square is $10^{14} \Omega/\square$ or lower. In order to obtain a sufficient antistatic effect, it is more preferable that the sheet resistivity R/\square is $10^{13} \Omega/\square$ or lower. Although the sheet resistivity is dependent on the shape of the spacer and the voltage applied between the spacers, preferably it is $10^7 \Omega/\square$ or higher.

Please amend the paragraph appearing from page 66, line 24 to page 67, line 12 as follows:

As described above, the temperature of the spacer rises when current flows through the antistatic film formed thereon or when the entire display generates heat during its operation. If the antistatic film has a temperature coefficient of resistance which is significantly negative, its resistance value decreases with temperature increase, which leads to increase in the current flowing through the spacer, and hence increase in temperature. And the current continues to rise till the power source reaches its limits. Empirically, the values of temperature coefficient of resistance at which such a thermal runaway takes place are negative and their absolute values are 1 % or larger. In other words, it is preferable that the temperature coefficient of resistance of the antistatic film is ~~less~~ more than -1 %.

Please amend the paragraph at page 68, lines 6-16 as follows:

The nitrides of aluminum-transition metal alloy are suitable materials because their resistance values can be controlled over a wide range from a good conductor to an insulating material by adjusting the composition of the transition metal. In addition, since their resistance values change only a little in the production process of an image display described below, they are stable materials. Further, since their temperature coefficients of resistance are ~~less~~ more than -1 %, they are easy to practically use. The above transition metals include, for example, Ti, Cr and Ta.

Please amend the paragraph appearing from page 79, line 19 to page 80, line 3 as follows:

As described above, the nitrides of aluminum-transition metal alloy are suitable materials because their resistance values can be controlled over a wide range from a good conductor to an insulating material by adjusting the composition of the transition metal. In addition, since their resistance values change only a little in the production process of an image display described below, they are stable materials. Further, since their temperature coefficients of resistance are ~~less~~ more than -1 %, they are easy to practically use. The above transition metals include, for example, Ti, Cr and Ta.